

Prevention of Contamination on Plated Wafer Surfaces

Abstract of the Disclosure

In order to prevent salt precipitation after plating a wafer surface, the described cleaning process applied to the wafer covered with a plating solution uses a complex former solution or the solution of an acid. The presence of a suitable complex former enhances the solubility of heavy metal ions typically by orders of magnitudes. Hereby a precipitation of salts is avoided. After plating, the wafer is necessarily covered with a plating solution. In a first cleaning step, the solution of the complex former is applied on the wafer surface. This procedure reduces the amounts of plating salts in the solution and keeps the solubility of the remaining salts high at the same time due to a formation of soluble metal complexes. After that step, the wafer is completely covered with clean complex solution. This solution is removed in a following step by a stream of de-ionized water, leading to a clean, water-covered wafer. The drying of the wafer can be performed in a conventional procedure (e.g. spin dryer) resulting in a clean, dry wafer. In particular, the following aqueous solutions of different complex formers are applied in various concentrations: Citrate (concentration 0.5–1.0 mol/kg); Acetate (concentration 0.5 mol/kg); EDTA (concentration 0.2–0.5 mol/kg); Ammonia (concentration 0.1–1.0 mol/kg); Hydrochloric acid; Phosphoric Acid.

Figures

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	